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The Effectiveness Of Counterpressure With Effleurage Massage On Labor Pain

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ABSTRACT

Background: Pain is a different personal and subjective experience for each individual, including in childbirth. Pain during childbirth, caused by uterine contractions, cervical dilatation and perineal distension. Pain management can be done in two ways, namely pharmacological and non-pharmacology. The non-pharmacological methods are massage counterpressure and massage effleurage. Objective: to find out the difference in the effectiveness of massage counterpressure and massage effleurage on labor pain at the UPTD Longkib Health Center, Subulussalam City. Methods: This research was carried out at the Longkib Health Center which used the Quasi Experiment research method with a pre-test post-test control design approach. Sample selection was carried out by consecutive sampling technique, the sample number was 20 respondents (10 respondents for counterpressure massage and 10 respondents for massage effleurage). The pain measurement used, namely the Numeric Rating Scale (NRS), was then processed in the SPSS computer program version 22. Results: Data were processed using the Mann-Whitney test with the result p value = 0.009. This shows that the value of $p < \alpha$, then the null (Ho) hypothesis is rejected and the alternative hypothesis (Ha) is accepted. Conclusion: that massage counterpressure is more effective than massage effleurage for lowering labor pain

INTRODUCTION

In Latin America, 33% of births are performed by cesarean section and continue to increase every year because they cannot tolerate pain. In fact, with the cesarean method, it will increase the risk of maternal and fetal morbidity and mortality (Villar: 2017). If you look at it, the condition of AKI in Indonesia has not reached the target, which is still 228 and the national target in 2018 is 118 and the SDG's 2030 target is 70 and this unmanaged state of pain can worsen the condition of AKI in Indonesia (Puspita, 2018).

Based on data obtained by the Directorate of Maternal Health during 2016-2021, there are several causes of maternal death, including bleeding, which is the cause with the highest percentage, namely 35.1% (2010), 31.9% (2011), 30.1% (2012), 30.3% (2013). The other causes of death are hypertension, infection, long partus, and other causes that are indirect causes of maternal death (Info DATIN, 2021). In Aceh City, maternal AKI has fluctuated over the last 3 years, namely in 2021 there were 4 maternal deaths out of 24,576 live births (AKI: 16.28/100,000 KH). The number of maternal deaths in 2022 was 5 out of 24,590 live births (AKI: 20.33/100,000 KH), in 2023 as many as 5 maternal deaths out of 25,181 live births (AKI: 19.86/100,000 KH) (Health Profile, 2023).

Pregnancy and childbirth are a natural process for a mother's life in productive age. When there is a disturbance in this process, both physiological and psychological disorders can cause adverse effects not only on the mother's health, but also on the baby she is carrying, and even often causing maternal death. Maternal and child health is one of the concerns of the World Health Organization (WHO) which estimates that in 2019 the Maternal Mortality Rate (MMR) in the world is 289,000 people. Data obtained from the Indonesian Demographic and Health

Survey (SDKI) in September 2019 found that the maternal and child mortality rate reached 359 per 100 thousand live births (Frestiana, 2020).

In the process of childbirth, there is stretching and widening of the cervix as a result of the contraction of the uterine muscles to push the baby out. Most mothers begin to feel pain or pain in childbirth during the first active phase, where the mother feels intense pain because the uterus contracts more and more often to produce the results of conception (Pasongli, et al., 2020). Pain is a personal, subjective experience, different from one person to another and can also be different for the same person at different times (Reeder, et al., 2022). Untreated pain can lead to death in both mother and baby as pain can cause the mother's breathing and heart rate to increase which causes blood and oxygen flow to the placenta to be disrupted.

The condition of labor pain makes most mothers choose the fastest and easiest way to relieve pain. The phenomenon that occurs today is that most mothers prefer to perform sectio caesarea surgery without clear indications. The results of the study by Ye, et al. (2019) in China, in the latent phase, there were 36.6% (30/82) who performed a cesarean section in the moderate pain group, and 17.2% (5/29) in the mild pain group. In the active phase, cesarean section was 40.4% (21/52) in the severe pain group and 20.4% (11/54) in the moderate pain group.

Efforts to reduce pain can use pharmacological and non-pharmacological methods. Pharmacological therapy by administering anti-pain drugs (analgesics) to pregnant women is recommended by doctors and non-pharmacological therapy can be done by health workers or the patient's family, one of which is using counterpressure massage which is a strong pressure massage by placing the heel of the hand or the flat part of the hand, or also using a tennis ball. Pressure can be applied in straight or small circular motions. This technique is effective in relieving back pain due to childbirth (Marmi, 2017). There is also massage effleurage which is one of the non-pharmacological methods as pain management in childbirth. Massage effleurage is a form of massage using the palm of the hand that applies gentle pressure to the surface of the body in a circular direction repeatedly (Reeder, et al., 2012).

The same thing was found that massage counterpressure was effective in reducing labor pain, namely in the results of research conducted by Mubsiroh and Darmawati at dr. Zainoel Abidin Hospital Banda Aceh in 2016 regarding the effectiveness of counterpressure pain management in childbirth, results were obtained before counterpressure massage was carried outpain scale 4-6 as many as 1 person (6.7%), pain scale 7-9 as many as 12 people (80%), pain scale 10 as many as 2 people (13.3%). After a counterpressure massage, pain scales 1-3 were 2 people (13.3%), pain scales 4-6 were 9 people (60%), and pain scales 7-9 were 4 people (26.7%). So there is an effectiveness of pain management with massage counterpressure against reducing the intensity of normal labor pain (Mubsiroh & Darmawati, 2016).

Based on the above background, it shows that the prevalence of maternal mortality has fluctuated. Various studies have been conducted showing that untreated pain can lead to death in both mother and baby because pain can cause breathing and the mother's heart rate will increase which causes blood and oxygen flow to the placenta to be disrupted, so it is necessary to carry out pain management.

RESEARCH METHODS

This study is a quantitative research using a quasi experiment research design and using a pre-test post-test control design approach. In the design of this study, there are two groups that are given different treatments, namely massage counterpressure and massage effleurage, where the massage effleurage group is used as a control group as a comparison of the group given massage counterpressure. The independent variables in this study are massage counterpressure and massage effleurage, the dependent variable is the reduction of labor pain. The effectiveness of treatment was assessed by comparing the intensity of pain before and after treatment.

The population and sample in this study are all maternity mothers in the UPTD Longkib Health Center, Subulussalam City. The sample was 20 respondents, 10 respondents for counterpressure massage and 10 respondents for massage effleurage. The sampling technique used is Nonprobability Sampling with a Consecutive Sampling approach.

This research was conducted at the UPTD Longkib Health Center, Subulussalam City. The time for this research was conducted from January-May 2025.

The instrument used in this study is the NRS (Numerical Rating Scale) assessment sheet, which is pain measurement using a scale of 0-10.

This analysis was used to determine the effectiveness of independent variables (massage counterpressure with massage effleurage) against dependent variables (reduction in labor pain period I) and to determine the mean difference between the two massages presented by the analysis technique using a non-paired T test if the data distribution is normal, but if the data distribution is abnormal, the Mann Whitney test is usedwith a numerical arrangement scale with a significance level of 5% (α=0.05) or a confidence level of 95% with interpretation.

RESULTS

Table 1. Frequency distribution based on the scale of labor pain

Massage Counterpressure		Massage Effleurage	
Pre	Post	Pre	Post
8	5	9	8
8	6	6	5
7	5	6	4
6	4	6	4
6	3	4	3
6	3	7	5
10	9	4	2
10	5	7	6
9	7	8	6
8	5	7	6

The distribution of the pain intensity scale showed that out of a total of 20 respondents who were divided into two groups, namely 10 respondents in the counterpressure massage group with the highest pain intensity scale before massage, namely a scale of 10 as many as 2 respondents and the lowest pain scale, namely a scale of 6, totaling 3 respondents.

Table 2. Average Pain Intensity in the Counterpressure Massage Group with Massage Effleurage

Groups		**n**	**Pain Intensity**	
			average±SD	**Min-Max**
Counterpressure	Pre	10	7.80±1.54	6-10
	Post	10	5.20±1.81	3-9
	Changes	10	2.60±1.07	1-5
Flowering	Pre	10	6.40±1.57	4-9
	Post	10	4.90±1.72	2-8
	Changes	10	1.50±0.52	1-2

The average level of pain after massage effleurage was 4.90 with minimum and maximum standard deviation values of 1.72, 2 and 8 respectively. The average change obtained was 1.50 with a standard deviation of 0.52 and the minimum and maximum values were 1 and 2.

Table 3. Analysis of the Effectiveness of Massage Counterpressure with Massage Effleurage on Labor Pain.

Groups		**Mean±SD**	**P value**	**Value t**
Massage Counterpressure	Pre Post	2.60±1.07	0,000	7,64
Massage Effleurage	Pre Post	1.50±0.52	0,000	9,00

The analysis of the effectiveness of massage counterpressure on labor pain was obtained with an average of 2.60 and a standard deviation of 1.07 with a value of P=0.000 and a value of t=7.64 while the average effectiveness of massage effleurage was 1.50 and a standard deviation of 0.52 with a value of P=0.000 and a value of t=9.00.

DISCUSSION

In bivariate analysis, a data normality test was carried out before conducting other tests. The results of the data normality test with the Shapiro-Wilk test obtained a p value of 0.000 so that it can be concluded that the distributed data is abnormal. Therefore, the results of the statistical test of the difference in the effectiveness of the counterpressure massage technique with massage effleurage on the level of labor pain during the first period used a non-parametric difference test (Mann-Whitney Test). In the counterpressure massage group, the average ranking was 13.75 while in the massage effleurage group, the average ranking was 7.25, this shows that there is a significant difference between the intervention group and the control group and a p value of 0.009 was obtained, which means that it is smaller than the significance level of 5% or α=0.05 and the z-value calculated as -2.625 (minus ignored) with z table=1.96 (z calculation>z table), so that it can be concluded that Ha is accepted H0 is rejected, this shows that massage counterpressure is more effective in reducing labor pain at the UPTD Longkib Health Center, Subulussalam City.

The results of this study are supported by the results of research conducted by Wardani and Herlina (2015) on the effectiveness of massage effleurage and massage counterpressure on the reduction of labor pain in BPM which is in the work area of Sooko Village, Mojokerto Regency showing the results of the t-test with a significance level of α=0.05 where massage counterpressure therapy(sig: 0.001) is more effectively used as a nonpharmacological therapy to relieve labor pain compared to massage effleurage therapy (sig: 0.003).

The results of this study are also in agreement with the results of a study conducted by Rejeki, et al (2013) on the level of low back pain during the first childbirth through back-effluerage and counter-pressure techniques at Ambarawa Hospital, Semarang Regency, showing that there is a significant difference between the effectiveness of the Back-Effleurage technique and the Counter-Pressure techniqueto the level of low back pain during the first active phase of childbirth with a value of $p<\alpha$ (0.046<0.05).

From the results of the study at the UPTD Longkib Health Center, Subulussalam City, it shows that there is a difference in effectiveness where massage counterpressure is more effective than massage effleurage. According to Rejeki (2013), the sources of period I pain that originate from the lower genital tract, including the perineum, vulvar anus and clitoris are transmitted through the pupendal nerve to the spinal through the 4th, 3rd, and 2nd sacrals. By giving a counterpressure massage, these pain impulses can be inhibited and the sensation of pain in the waist area can be reduced.

In addition to this theory, massage counterpressure can also be explained using the basis of the endogenous opiate theory, where opiate receptors located in the brain and spinal cord stimulate the central nervous system to activate morphine substances called endhorpine and enkephaline when pain is received. These opiate receptors are located at the peripheral sensory nerve endings that can be stimulated by skin stimulation through massage with strong pressure so as to block the transmission of pain and can activate endhorpine or natural antidote compounds in the digestive control system that can relax the muscles so that pain is reduced.

Meanwhile, stimulus with massage effleurage can maintain a balance of activity from sensory neurons and the descent control fibers of the brain that regulate defense processes. Delta-A and C neurons stimulate the release of substance C which releases substance P to transmit impulses through defense mechanisms. Thicker beta-A neurons can release inhibitory neurotransmitters more quickly and if the dominant stimulus comes from beta-A fibers, pain-transmitting fibers that result in closed gates so that the cerebral cortex does not receive pain signals and the intensity of pain changes/decreases, so that it can make responders more comfortable, due to muscle relaxation (Handayani, 2011).

Massage counterpressure blocks pain impulses that will be transmitted to the brain faster than the way massage effleurage works which must go through stages in blocking pain impulses when contractions occur (Rejeki, 2013).

According to researchers, labor pain is an unpleasant feeling and is an individual response in the labor process. The intensity of pain is very subjective, many things can cause labor pain, including contractions and stretching of the uterus, opening the cervix and stretching of the birth canal. There are also several factors that affect pain, one of which is the parity factor, where primipara mothers do not have experience with childbirth so that self-preparation is not optimal and experiences longer childbirth compared to multipara, which causes increased pain in the delivery process. However, there is a slight difference in the field, where some multipara mothers experience higher pain intensity than primipara mothers who are characterized by anxiety and crying even to the point of screaming in pain. For multiparaparaphrasing mothers, perhaps the pain is related to their past experiences.

Meanwhile, from the educational factor, in theory it is explained that the higher the level of education, the more materials, materials and knowledge you have so that you can better tolerate the pain felt. But in reality on the ground, researchers found that not all well-educated mothers can tolerate pain, on the contrary there are some mothers with low education who are able to tolerate pain well.

In addition, there are also psychological factors that affect the intensity of pain, namely fear and anxiety about the delivery that will be experienced, the ability to exercise self-control, and the confidence and attention of the delivery companion. The provision of massage therapy and continuous information about pain in mothers during pregnancy and childbirth is very necessary to prepare mothers physically and psychologically to face the childbirth process. Mothers who are not given an explanation about massage therapy either before childbirth or before childbirth can make mothers feel uncomfortable with the therapy given. In addition, birth attendants are also required to master the correct massage technique with the aim of reducing pain that arises during childbirth, preventing long labors due to excessive anxiety and pain and can reduce the number of cesarean sections.

Based on observations, researchers see that massage counterpressure is more effective in reducing pain and is more in demand by respondents, even in respondents who have had massage effleurage they asked to do a massage counterpressure also because they felt that massage massage only provides a feeling of comfort and relaxation even though the pain is indeed reduced but not as effective Counterpressure massage.

From the discussion above, the researcher assumes that massage counterpressure and massage effleurage both have an impact on reducing pain intensity, but massage counterpressure is more effective because the way it works in blocking pain is faster so that the nerve pathways to transmit pain sensations can be inhibited or reduced quickly so that the intensity of pain felt by the mother can be reduced. So the conclusion is that massage

counterpressure is more effective in reducing pain and is more in demand by mothers in childbirth. In addition, it is necessary to pay attention to the factors that affect pain so that it can overcome pain with the right massage technique.

CONCLUSION

From the results of a study carried out on 20 respondents regarding "The effectiveness of massage counterpressure with massage effleurage on labor pain at the UPTD Longkib Health Center, Subulussalam City". It can be concluded that namely:

There was a change in the intensity of labor pain before and after the intervention in the counterpressure massage group.

There was a change in the intensity of labor pain before and after the massage effleurage intervention.

Massage counterpressure is more effectively used as a nonpharmacological therapy to reduce labor pain compared to massage effleurage.

ADVICE

Based on the results of the study, there is a difference in pain intensity between before and after the administration of counterpressure massage and massage effleurage which can cause a sense of comfort and relaxation, so that it can reduce pain in mothers during childbirth. Therefore, this study recommends massage counterpressure and massage effleurage are recommended to be considered as part of intranatal care services in intrapartum mothers, especially during the first active phase.

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